Pending claims (03/28/03)
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Claim 1. (previously amended) A zinc finger polypeptide library in which each polypeptide comprises more than one zinc finger comprising amino acid positions -1 to + 9 with position 1 representing the first amino acid of an alpha-helix and wherein each polypeptide has been at least partially randomised such that the randomisation extends to cover at least one position selected from the group consisting of -1, 1, 2, 3, 5 and 6 and at least one position selected from the group consisting of -1, 1, 2 and 3 in first and second adjacent finger respectively.

Claim 2. (previously amended) A library according to claim 1 wherein each polypeptide comprises between three and six zinc fingers.

Claim 3. (previously canceled)

Claim 4. (previously amended) A set of zinc finger polypeptide libraries which encode overlapping zinc finger polypeptides, according to claim 1, wherein the polypeptides may he assembled after selection to form a multifinger zinc finger polypeptide.

Claim 5. (original) A set according to claim 4, comprising a pair of libraries encoding three-zinc finger polypeptides.

Claim 6. (previously amended) A library according to claim 1, wherein the randomised positions are selected from positions -1, 1, 2, 3, 5 and 6.

Claim 7. (previously amended) A library according to claim 1, wherein the randomization of amino acid residues is restricted such that the following amino acids appear at the given positions:

Position	Amino Acids
-1	R, Q, H, N, D, A, T
1	S, R, K, N
2	D. A, R, Q, H, K, S, N
3	H, N, S, T, V, A, D
5	I, T, K
6	R, Q, V, A, E K, N, T

Claim 8. (original) A set of two libraries according to claim 7 for selecting a three-finger zinc finger protein, wherein the following amino acids may appear at the given positions:

	Library 1		**Library 2**
Fl:	**amino acid**	**Fl:**	**amino acid**
-1	R, Q, H, N, ,D, A		
2	D, A, R, Q, H, K, S, N		
3	H, N, S, T, V, A, D		
5	I, T		
6	R, Q, V, A, E, K, N, T		
F2			
-1	R, Q, H, N, D, A, T		
1	S, R		
2	D, A, R, Q, H, K, S, N		
3	H, N, S, T, V, A, D	3	H, N, S, T, V, A, D
		6	R, Q, V, A, E, K, N, T
F3			
		-1	R, Q, H, N, D, A, T
		1	R, K, S, N
		2	D, A, R, Q, H, K, S, N
		3	H, N, S, T, V, A, D
		5	K, I, T
		6	R, Q, V, A, E, K, N, T

Claim 9. (previously canceled)

Claim 10. (previously amended) A library according to claim 1, wherein each zinc finger has the general primary structure

(A) X^a C X_{2-4} C X_{2-3} F X^c X X X X L X X H X X X^b H – linker (SEQ ID NO:5)

-1 1 2 3 4 5 6 7 8 9

Claim 11. (original) A library according to claim 10 wherein X^a is $^F/_Y$-X or P-$^F/_Y$-X.

Claim 12. (previously amended) A library according to claim 10 wherein X_{2-4} is selected from any one of: S-X, E-X, K-X, T-X, P-X and R-X.

Claim 13. (previously amended) A library according to claim 10 wherein X^b is T or I.

Claim 14. (previously amended) A library according to claim 10 wherein X_{2-3} is G-K-A, G-K-C, G-K-S, G-K-G, M-R-N or M-R.

Claim 15. (previously amended) A library according to claim 10 wherein the linker is T-G-E-K (SEQ ID NO:6) or T-G-E-K-P(SEQ ID NO:7).

Claim 16. (previously amended) A library according to claim 10 wherein position +9 is R or K.

Claim 17. (previously amended) A library according to claim 10 wherein positions +1, +S and +8 are not occupied by any one of the hydrophobic amino acids, F, W or Y.

Claim 18. (original) A library according to claim 17 wherein positions +1, +5 and +8 are occupied by the residues K, T and Q respectively.

Claim 19. (previously amended) A method for preparing a library of nucleic acid binding proteins of the Cys2-His2 zinc finger class capable of binding to a target nucleic acid sequence, comprising the steps of:
a) selecting a model zinc finger polypeptide from the group' consisting of naturally occurring zinc finger polypeptides and consensus zinc finger polypeptides; and
b) randomising more than one finger therein according to claim 1 to 9.

Claim 20. (previously amended) A method according to claim 19, wherein the model zinc finger is a consensus zinc finger whose structure is selected from the group consisting of the consensus structure
P Y K C P E C G K S F S Q K S D L V K H Q R T H T G (SEQ ID NO:8), and the consensus structure P Y K C S E C G K A F S Q K S N L T R H Q R I H T G E K P (SEQ ID NO:9).

Claim 21. (original) A method according to claim 19 wherein the model zinc finger is a naturally occurring zinc finger whose structure is selected from one finger of a protein selected from the group consisting of Zif 268 (Elrod-Erickson *et al.*, (1996) Structure 4:1171-1180), GLI (Pavletich and Pabo, (1993) Science 261:1701-1707), Tramtrack (Fairall *et al.*, (1993) Nature 366:483-487) and YY1 (Houbaviy *et al.*, (1996) PNAS (USA) 93:13577-13582).

Claim 22. (original) A method according to claim 21 wherein the model zinc finger is finger 2 of Zif 268.

Claim 23. (previously amended) A method for determining the presence of a target nucleic acid molecule, comprising the steps of:

a) preparing a nucleic acid binding protein by the method of claim 1 which is specific for the target nucleic acid molecule;

b) exposing a test system comprising the target nucleic acid molecule to the nucleic acid binding protein under conditions which promote binding; and removing any nucleic acid binding protein which remains unbound;

c) detecting the presence of the nucleic acid binding protein in the test system.

Claim 24. (original) A method according to claim 23, wherein the presence of the nucleic acid binding protein in the test system is detected by means of an antibody.

Claim 25. (previously amended) A method according to claim 23 wherein the , nucleic acid binding protein, in use, is displayed on the surface of a filamentous bacteriophage and the presence of the nucleic acid binding protein is detected by detecting the bacteriophage or a component thereof.

Claim 26. (new) The method of claim 1, wherein the randomization extends to at least positions 6 and 2 of the adjacent first and second zinc fingers respectively.

Claim 27. (new) A library according to claim 1 wherein at least positions -1, 1, 2, 3, 5 and 6 of a first zinc finger and -1, 1, 2 and 3 of a second finger are randomized.

Claim 28. (new) A library according to claim 1 wherein at least positions 3, 5 and 6 of a first zinc finger and -1, 1, 2 and 3 of a second finger are randomized.